

**December/FY06**

**VANCOUVER BARRACKS**  
Washington

**Army Defense Environmental  
Restoration Program  
Installation Action Plan**

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## Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Military Munitions Response Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive approach, with associated costs and schedules, to conduct investigations and necessary remedial actions. The installation action plan is used to track requirements, schedules and proposed budgets for Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan:

**Company/Installation/Branch**

Fort Lewis Public Works

Engineering and Environment, Inc. for US Army Environmental Center

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Fort Lewis Public Works

## Acronyms & Abbreviations

<b>AEDB-R</b>	Army Environmental Database - Restoration
<b>BRAC</b>	Base Realignment and Closure
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation and Liability Act of 1980
<b>CTC</b>	Cost-to-Complete
<b>DERP</b>	Defense Environmental Restoration Program
<b>ER,A</b>	Environmental Restoration, Army (formerly called DERA)
<b>FS</b>	Feasibility Study
<b>FY</b>	Fiscal Year
<b>IAP</b>	Installation Action Plan
<b>IRP</b>	Installation Restoration Program
<b>K</b>	thousand
<b>LTM</b>	Long-Term Management
<b>MEC</b>	Munitions and explosives of concern
<b>MMRP</b>	Military Munitions Response Program
<b>MP</b>	Military Police
<b>NPL</b>	National Priorities List
<b>OB/OD</b>	Open Burning/Open Detonation
<b>PA</b>	Preliminary Assessment
<b>POC</b>	point of contact
<b>RA</b>	Remedial Action
<b>RA(C)</b>	Remedial Action (Construction)
<b>RA(O)</b>	Remedial Action (Operation)
<b>RAB</b>	Restoration Advisory Board
<b>RACER</b>	Remedial Action Cost Engineering and Requirements
<b>RC</b>	Response Complete
<b>RD</b>	Remedial Design
<b>REM</b>	Removal
<b>RI</b>	Remedial Investigation
<b>RIP</b>	Remedy-in-Place
<b>RRSE</b>	Relative Risk Site Evaluation
<b>RSC</b>	Reserve Support Command
<b>SI</b>	Site Inspection
<b>TRC</b>	Technical Review Committee
<b>USACHPPM</b>	United States Army Center for Health Promotion and Preventive Medicine
<b>USAEC</b>	United States Army Environmental Center
<b>USATHAMA</b>	United States Army Toxic and Hazardous Material Agency (replaced by USAEC)
<b>USAR</b>	US Army Reserve
<b>USEPA</b>	United States Environmental Protection Agency
<b>UST</b>	Underground Storage Tank
<b>UXO</b>	Unexploded Ordnance
<b>VANCV</b>	Vancouver Barracks AEDB-R designation
<b>VB</b>	Vancouver Barracks
<b>VOC</b>	Volatile Organic Compounds
<b>WA</b>	Washington

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## Acronyms & Abbreviations

**WWII**  
**YTC**

World War II  
Yakima Training Center

**Installation Locale:** Vancouver Barracks is located on the north bank of the Columbia River in the city of Vancouver, Washington, across the river from Portland Oregon. The west side of Vancouver Barracks is bounded by Interstate 5.

**Installation Mission:** Vancouver Barracks provides Headquarters, Training, and Retention activities for the 70th Regional Readiness Command (USAR), 104th Division (USAR) and elements of the Washington State National Guard.

**Lead Organization:**

Installation Management Agency - Northwest Regional Office

**Lead Executing Agencies:** Headquarters, I Corps and Fort Lewis, Environmental and Natural Resource Division of Public Works

**Regulatory Participation:**

**Federal:** US Environmental Protection Agency, Region 10, Federal Facilities Branch

**State:** Washington State Department of Ecology, Toxic Cleanup Program

**National Priorities List (NPL) Status:** Non-NPL Installation

**Installation Restoration Advisory Board (RAB)/Technical Review Committee**

**(TRC)/Technical Assistance for Public Participation (TAPP) Status:** No RAB exists at Vancouver Barracks.

**Installation Program Summaries**

**IRP**

The two IRP sites at Vancouver Barracks were response complete as of 1998.

**MMRP**

Contaminants of Concern: UXO, MEC

Media of Concern: Soil

Estimated date for RIP/RC: 2017/2047

Funding to Date (thru FY05): \$25K

Current Year Funding (FY06): \$425K

Future Requirements (FY07+): \$16,553K

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## Cleanup Program Summary

### ***Installation Historic Activity***

The original Vancouver Barracks site included 640 acres of land. Vancouver Barracks was the main US Army base in the northwest during the Indian wars, Spanish American War, the Philippine Insurrection, and World War I. During World War II its functions were gradually moved to Fort Lewis. Over time, parcels were disposed of to other governmental entities and private owners. A major portion of Vancouver Barracks was acquired by the US National Park Service to establish Fort Vancouver National Historic Site. A small USAR facility remains. All IRP sites were response complete by 2000. This facility is on the 2005 BRAC list.

### ***IRP***

Vancouver Barracks had two IRP sites that are now considered RC. A PA was completed at VABA-1, Army Maintenance Support Facility, in March 1996. No contamination was found at this site. A PA was completed at VABA-2, Abandoned Vehicle Washrack (Bldg 400), in March 1996, with an SI completed in November 1998. The final SI report was reviewed by the USEPA and the Washington Department of Ecology. Both agencies declared no further action is required.

### ***MMRP***

The PA has been completed. A SI was initiated in 2005 and expected to be completed by September 2006. The SI will verify the PA findings and estimates generated via RACER by the USAEC MMRP Program Office.

## IRP No Further Action Sites Summary

AEDB-R#	Site Title	Documentation/Reason for NFA	NFA Date
VABA-1	ARMY MAINTENANCE SUPPORT ACTIVITY	Study Completed. No Cleanup Required.	199603
VABA-2	ABANDONED VEHICLE WASHRACK (BLDG 400)	Final SI report reviewed by EPA and WA Dept of Ecology, both of whom stated NFA required	199812



# VANCOUVER BARRACKS

## Military Munitions Response Program

**AEEDB-R Sites/Sites RC:** 5/0

**AEEDB-R Site Types:**

3 Unexploded Munitions/Ordnance

2 Small Arms Range

**Contaminants of Concern:** UXO, MEC

**Media of Concern:** Soil

**Completed REM/IRA/RA:** None

**Total MMRP Funding:**

Funding to Date (thru FY05): \$ 25K

Current Year Funding (FY06): \$ 425K

Future Requirements (FY07+): \$16,553K

Total: \$17,003K

**Duration of MMRP:**

Year of MMRP Inception: 2002

Year of MMRP RIP/RC: 2017

Year of MMRP Completion (including LTM): 2047

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## MMRP Contamination Assessment

### ***MMRP Contamination Assessment Overview***

The PA has been completed. An SI was initiated in FY05 and expected to be completed in FY06.

### ***MMRP Cleanup Exit Strategy***

The SI will verify the PA findings and estimates generated via RACER by the USAEC MMRP Program Office. An RI/FS is currently planned at all sites. A MEC site characterization and removal assessment, a removal action, and MEC institutional controls are planned at VANCV-001-R-01, - 002, and -005.

The installation of groundwater monitoring wells and the excavation and disposal of contaminated soils are currently planned at site VANCV-003-R-01 and -004.

### 2003

- Final US Army Closed, Transferred and Transferring Range/Site Inventory for Fort Lewis and Vancouver Barracks, Washington, engineering-environmental Management, Inc., December

# VANCOUVER BARRACKS

## Military Munitions Response Program Site Descriptions

# VANCV-001-R-01

## COLUMBIA RIVER SITE

### SITE DESCRIPTION

The Columbia River Dump Site exists in the Columbia River just off the northern bank in the southwestern corner of Vancouver Barracks upstream from the old shipyard. The waterfront at the Columbia River was a Government pier for the Army from 1849 to 1948. It was used to bring troops and supplies to Vancouver Barracks. Also during WW II, this area was a large shipyard called the Kaiser shipyard. During that time, munitions were dumped into the Columbia River. The Dump Site is 0.1 acres in size. A diver who dives frequently in the area has found small and large caliber munitions on the bottom of the river. The diver was contacted and gave a verbal account that he has identified upwards of 50 live small caliber shells during various dives to the area. He also indicated the bottom of the river is littered with metal, chains, ropes, cable, logs, and batteries. The diver also indicated that 95% of the munitions are concentrated in a 200 foot by 20-foot area (the site boundary indicated herein). He also indicated that he has seen other larger caliber munitions on the bottom of the river. No known UXO responses have been completed. The area is off limits to divers, as the gentleman interviewed has been asked to leave the river site multiple times. The site is now part of the Vancouver National Historic Reserve, and is used as a part of the historic tourism for the National Park Service. A SI was initiated in FY05 and is schedule to be completed in FY06.

### CLEANUP STRATEGY

Data obtained at the completion of the SI will determine the Cleanup Strategy. Currently, an RI/FS, MEC site characterization, a removal assessment and a removal action, and MEC institutional controls are planned at this site.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 1 - High Risk

**CONTAMINANTS OF CONCERN:**  
UXO, MEC

**MEDIA OF CONCERN:** Soil

Phases	Start	End
PA .....	200212.....	200312
SI .....	200509.....	200609
RI/FS .....	200810.....	201009
RD .....	201410.....	201509
RA(C) .....	201610.....	201709
LTM .....	201710.....	204709

**RC: 201709**

# VANCV-002-R-01 EASTERN PORTION

## SITE DESCRIPTION

The entire southern part of historical Vancouver Barracks (VB) had many different activities and munitions used throughout its history. Maps of the Barracks have shown a bastion, skirmish range, magazine storage buildings, powder storage buildings, and an ordnance depot. In addition, one site POC indicated that UXO and expended munitions are often found during excavations in the area. Since the exact location of the activities and munitions is unknown, the entire southern part has been included but has been divided into two separate sites.

The Eastern Portion has been used since the original settlement of VB in the early 1800s as a strategic military post. Activities on the post included training of military personnel. Various structures have existed on this portion of the land including a bastion, skirmish range, magazine storage buildings, powder storage buildings, an ordnance depot and a pistol range. The pistol range is located on the southern boundary of this area. The range fan extends beyond the historic boundaries of Vancouver Barracks over the Columbia River. The Eastern area is 173.7 acres in size and is immediately east of the existing Vancouver Barracks property owned by the 70th RSC on the bank of the Columbia River. Verbal interviews with a private citizen and military personnel, who served at Vancouver Barracks during WW II, indicated the use of munitions such as large caliber munitions, small arms munitions, cannon balls, grapeshot, and primary explosives and the presence of UXO on site. Also, excavation reports have revealed the presence of unexploded grenades (practice and live) in the Stockade area. It is unknown when these munitions were used on site. Therefore, the period of use is conservatively estimated at the first year of military use in 1849, until just before the creation of the Vancouver National Historic Reserve in 1961. UXO has been found on site during excavations for development and archaeological investigations. A majority of the area is now a park and tourist attraction with a reconstructed Fort Vancouver and Visitor's Center. A SI was initiated in FY05 and is schedule to be completed in FY06.

## CLEANUP STRATEGY

Currently, an RI/FS to include the installation of groundwater monitoring wells, MEC site characterization, a removal assessment and a removal action, and MEC institutional controls and groundwater monitoring are planned at this site.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 2 - Serious Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil

PHASES	Start	End
PA .....	200212 .....	200312
SI .....	200509 .....	200609
RI/FS .....	200810 .....	201009
RD .....	201410 .....	201509
RA(C) .....	201610 .....	201709
LTM .....	201710 .....	204709

**RC: 201709**

# VANCV-003-R-01

## RANGE 4 - PISTOL RANGE

### SITE DESCRIPTION

The Pistol Range existed in the southern portion of Vancouver Barracks prior to World War II. The Pistol Range is 222.55 acres in size and located along the northern bank of the Columbia River just east of the current Vancouver Barracks boundary. The firing line of the range is within the eastern portion of historic Vancouver Barracks. The range fan crosses the Columbia River and also covers a portion of land on the other side of the river. Most likely only small arms were used at this range because of its name and small size. Verbal evidence corroborating this was obtained from a MP (Military Police) who served at Vancouver Barracks before World War II and who also used this Pistol Range at the time. This Pistol Range appears on the untitled 1935 map and the topographic map from 1942, but does not appear on the Vancouver Barracks map of 1928. In addition, verbal evidence from the MP who served here during World War II indicated that the Pistol Range was constructed after 1928. Therefore, the construction year is assumed to be 1929. Since only one map showing Vancouver Barracks after 1942 was obtained, and that map does not show the southern-most part of Vancouver Barracks, the end year for small arms is assumed to be 1945, the end of World War II. However, the land portion of the range is assumed to have been used for maneuver training through 1960 until the establishment of the Vancouver National Historic Reserve in 1961. No known UXO responses have been conducted. Any existing UXO may no longer exist on the surface due to the superficial improvements to the area. The area is currently used as a park. A SI was initiated in FY05 and is schedule to be completed in FY06.

### CLEANUP STRATEGY

Data obtained at the completion of the SI will determine the Cleanup Strategy. An RI/FS is currently planned at this site to include the installation of groundwater monitoring wells and the excavation and disposal of contaminated soils.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 5 - Negligible Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil

PHASES	Start	End
PA .....	200212 .....	200312
SI .....	200509 .....	200609
RI/FS .....	201010 .....	201109
RD .....	201410 .....	201509
RA(C) .....	201610 .....	201709

**RC: 201709**



# VANCV-004-R-01

## RIFLE RANGE COMPLEX (PAGE 1 OF 2)

### SITE DESCRIPTION

Three independent transferred rifle ranges existed north of officer's row from the mid 1800s, through the early 1900s. The Rifle Range Complex is 2,430.97 acres. The ranges that comprise the Rifle Range Complex overlap and have been grouped together as one range area for this report. Each of the individual ranges is described in the following paragraphs.

A Rifle/Target Range existed in the northern portion of Vancouver Barracks, which appears to have been developed from dense coniferous forest to range area sometime between 1846 and 1880. The 1846 map of Vancouver Barracks indicates the dense coniferous forest, and the 1880 map indicates the Rifle/Target Range. This range is located along the western edge of the historic Vancouver Barracks property, along the east side of current-day Interstate Highway 5 north of Officers Row. The range consisted of a firing line and target butts at distances varying from 200 to 1,000 yards. The map titles of the "Rifle Range" and "Target Range" indicate that only rifles and other small arms were used at the range. This range appeared again on the Reservation map from 1895, however it did not appear on the Vancouver Barracks map of 1928. The period of use is therefore estimated to be from 1880 to 1927. No known UXO responses have occurred on site. UXO may no longer exist on the surface due to the superficial improvements to the area.

An Old Rifle Range also existed in the northern portion of Vancouver Barracks. The 1846 map of Vancouver Barracks indicates the dense coniferous forest, and the 1880 map indicates the Old Rifle Range. This range is located in the northern central portion of the historical Vancouver Barracks north of Officers Row. Its size is based on the width of the southern boundary of the range, assumed to be the firing line (firing away from Officers Row similar to the Rifle/Target Range). Also, the shape of the range is assumed to be rectangular as indicated by the map, and assumed to be 1,000 yards in length (similar to the Rifle/Target Range). Because of the similar size of this range to the Rifle/Target Range, and this range's title "Old Rifle Range," most likely similar types of rifles and small arms were used. The 1880/1886 map is the only map on which this range appears, therefore its period of use is assumed to be from 1847 to 1886. 1886 was chosen as the end year because of the word "Old" in the title of the range on the 1880/1886 map indicates its inactive status at that time. No known UXO responses have occurred on site. UXO may no longer exist on the surface due to the superficial improvements to the area.

A Small Arms Range existed at the former Gravel Pits in the northern portion of Vancouver Barracks. This range appears on the Vancouver Barracks map of 1928. This range is

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 5 - Negligible Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil

PHASES	Start	End
PA .....	200212 .....	200312
RI/FS.....	200810 .....	201009
RD .....	201510 .....	201609
RA(C).....	201610 .....	201709

**RC: 201709**

## VANCV-004-R-01

### RIFLE RANGE COMPLEX (PAGE 2 OF 2)

located along the western edge of historical Vancouver Barracks property, along the east side of current-day Interstate Highway 5 north of Officer's Row. Most likely only small arms were used at this range because of its small size. The 1928 map is the only map on which this range appears, therefore its period of use is assumed to be from 1928 to 1941. 1928 was chosen as the start year, because the Rifle/Target Range was assumed to have existed until 1927. The existence of a 200 yard target butt at the Rifle/Target range would have precluded the need for this 200 yard range. This Small Arms Range at the Gravel Pits did not show up on the topographic map of 1942, therefore the end date of 1941 is used. No known UXO responses have occurred onsite. UXO may no longer exist on the surface due to the superficial improvements to the area. Currently the Rifle Range Complex area is occupied by office buildings, parks, schools and residential areas. A SI was initiated in FY05 and is schedule to be completed in FY06.

#### CLEANUP STRATEGY

An RI/FS is currently planned at this site to include the installation of groundwater monitoring wells and the excavation and disposal of contaminated soils.

# VANCV-005-R-01 WESTERN PORTION

## SITE DESCRIPTION

The Western Portion has been used since the original settlement of Vancouver Barracks in the early 1800s as a strategic military post. Activities on the post included training of military personnel. Various structures have existed on this land including dormitories, stables, and warehouses. The area is 27.35 acres in size and is immediately south of East 5th Street on the existing Vancouver Barracks property. A verbal interview with a private citizen and military personnel, who served at Vancouver Barracks during WW II, indicated the use of large caliber munitions and small arms at Vancouver Barracks. Also, past excavations have discovered complete and spent small arms rounds and past activities indicate the possible presence of cannon balls and grapeshot. Therefore large caliber munitions and complete and expended small arms rounds are conservatively assumed to exist on this site. It is unknown when these munitions were used onsite. The period of use is conservatively estimated at the first year of military use in 1849, until just before the creation of the Vancouver National Historic Reserve in 1961. UXO has been found on site during excavations for development and archaeological investigations. The area is currently used for motor vehicle storage and maintenance, administrative functions, storage, teaching classrooms, and training areas. A SI was initiated in FY05 and is schedule to be completed in FY06.

## CLEANUP STRATEGY

Currently, an RI/FS to include the installation of groundwater monitoring wells, MEC site characterization and removal assessment, and the excavation and disposal of contaminated soils, MEC removal action, and MEC institutional controls are planned at this site.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 1 - High Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
PA .....	200212 .....	200312
RI/FS .....	201010 .....	201109
RD .....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM .....	201710 .....	204709

**RC: 201709**

***Initiation of MMRP:*** 200212

***Past Phase Completion Milestones***

**2003**

PA, all MMRP sites, December

***Projected ROD/DD Approval Dates:*** 2017

***Projected Construction Completion:*** 2017

***Schedule for Five-Year Reviews:*** 2021

***Estimated Completion Date of MMRP (including LTM):*** 2047

# Vancouver Barracks MMRP Schedule

(Based on current funding constraints)

AEDB-R #	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
VANCV-001-R-01	RIFS									
	RD									201509
	RA(C)									201709
	LTM									204709
VANCV-002-R-01	RIFS									
	RD									201509
	RA(C)									201709
	LTM									204709
VANCV-003-R-01	RIFS									
	RD									201509
	RA(C)									201709
VANCV-004-R-01	RIFS									
	RD									201609
	RA(C)									201709
VANCV-005-R-01	RIFS									
	RD									201609
	RA(C)									201709
	LTM									204709

***Prior Years Funding***

Year	Site Information	Expenditures	FY Total
<b>FY03</b>	PA, All MMRP Sites	\$25K	\$25K
<b>Total Funding Thru FY05: \$25K</b>			

***Current Year Funding***

Year	Site Information	Expenditures	FY Total
<b>FY06</b>	VANCV-001-R-01, SI	\$107K	
	VANCV-002-R-01, SI	\$202K	
	VANCV-003-R-01, SI	\$116K	\$425K
<b>Total Funding FY06: \$425K</b>			

***Total Future Requirements: \$16,553K***

***Total MMRP Cost: \$17,003K***